

DIGITAL ONLINE ACTIVE TEST PLANT PROTECTION SYSTEM IN A NUCLEAR  
POWER PLANT AND METHOD THEREOF

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ABSTRACT OF THE DISCLOSURE

There is disclosed an improved digital software-based reactor protection system and an engineered safety feature actuation system. A digital online active test -  
10 plant protection system in a nuclear power plant according to the present invention comprises a test generating computer (TGC) for generating a test input being a command to initiate a test and a test signal position bit indicating that the test input is currently generated at what position of the process parameters; a trip algorithm computer (TAC) for receiving plant operating parameters via a plurality of measuring channels physically and  
15 electrically isolated and then comparing the measured operating parameters and a predetermined limit values to determine a trip state, if there is a test input by the TGC; a voting algorithm computer (VAC) for receiving trip signals from each of the plant operating parameters determined by the TAC, determining whether a reactor has to be stopped or not and then outputting a signal to stop the reactor; and a pattern recognition  
20 computer (PRC) for expecting a signal pattern from the state of the reactor, comparing the signal pattern with the reactor trip signal generated by the VAC, and then if the signal pattern and the reactor trip signal are not consistent, determining to stop the reactor.